Analysis of The Needs of Karanganyar Traditional Children Toys Production Machine, Welahan, Jepara

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Abstract. The form of the superior products in the Karanganyar village in Jepara, traditional toys, klothokan and kitiran still survives amid high-tech toys. The community as an element of production still faithfully applies their energy and skills to express ideas and creations of simple children's toys. The complexity and detail of traditional children's toys is a major factor in the culture of production with human hands. The need for modern technology machines such as sponge molding machines in klothokan toys, bamboo oven drying machines and bamboo lathes in kitiaran toys is a technological innovation requirement that must be introduced and familiarized when the production process is carried out by the community. The expected result is that the amount of goods produced increases without bothering human labor and natural factors such as weather are no longer a constraint for the community to produce superior quality products.

Keywords: traditional, educational games, children.

1 Introduction

Indonesia's creative industry, which has a variety of features, makes our country rich in regional cultural products. One of the creative industries in Indonesia that supports the introduction of regional culture, namely the children's toy industry. The local culture-based children's toys industry is the result of the creation of society towards children's play needs and complementary games that have been created by ancestors. Therefore playing is attached to social groups that are applied through symbolic interaction in the form of traditional games.

Playing is one of the ways children learn about their environment through senses. The feeling generated from playing activities is usually in the form of pleasant responses obtained from the social environment. Playing will foster interest in exploring children, practicing physical growth, and sharpening imagination, as well as giving experience to interact with the social environment. The form of social support for children's growth and development can be demonstrated by the creation of games that adjust the environment in which they live. So playing is a tradition that has been entrenched in children's social life in society.

Playing is an activity with practical value as a children's media to develop certain abilities in children (Sujiono, 2005) [1]. The characteristics of play are active and fun activities carried out voluntarily and internal motivation arises from within the child itself. Isniwarti (2010: 8) [2], mentions the impact of playing on children: (1) Playing while learning, (2) Supporting physical development and mental health, (3) Training children tested in the face of challenges and culture. Meanwhile, according to Mutiah (2010: 113) [3] suggests that the game is able to

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stimulate children's growth: (1) As a means of fostering socialization skills in children, (2) Developing children's potential and abilities, (3) Means of developing children's emotions.

But the main thing to play has a positive impact, among others: (a) optimizing the physical and mental development of children, (b) meeting children's emotional needs, (c) developing children's creativity and language skills, (d) helping the socialization process, (e) developing abilities motoric, cognitive, affective, language and social aspects (Suyanto, 2005). The social role of the playing aspect is the impact of the creation of various types of games that have been created.

The term "game" comes from the basic word "play" which means doing fun. Traditional games or folk games are a type of game that grows and develops in the past, especially in rural areas. Traditional games usually develop due to the needs of the surrounding community. Traditional games are also influenced by the nature of the surrounding environment which is interesting and entertaining according to the conditions of today's society. Traditional games are generally recreational, because many require children's creation (Yunus, 1981) [4]. The game reconstructs various social activities in society. The influence of the natural environment and culture of society changes both in the form of substitution, change, addition or reduction by adjusting the needs of the local community. So the naming of traditional games differs between regions but usually has similarities or similarities in the procedures and equipment of the game.

Classification of play according to Mildred Parten (1932) seen from the social development of children, includes: (1) Solitary games (playing alone), (2) Onlooker games (playing by seeing friends playing), (3) Parallel games (playing parallel with friends with the same material but working alone), (4) Associative games, (5) Cooperative games (playing with rules and division of roles). Games based on how to play can be grouped into: (a) physical play, (b) games with children's songs, (c) puzzles, mathematical logical thinking, (d) playing with objects, (e) role playing.

This type of game can be classified in children's play with the child's game conditions must have identification: (1) must be happy for the child, (2) must provide opportunities for children to fantasize, (3) should contain elements of beauty or artistic value, (4) must contain the value of education for children in terms of order, discipline, sportsmanship and togetherness.

Besides that, traditional games contain cultural values in traditional games children can be classified into several positive values:

a. The value of pleasure or excitement, the nature of the child uses play to create joy
b. The value of freedom, playing freely in the open environment raises a positive attitude free from pressure
c. The value of friendship, playing requires partners so as to train children's social life skills.
d. The value of democracy, in playing it requires openness, honesty, fairness and mutual respect for each other
e. The value of leadership, in the group game can be coordinated by a leader
f. The value of responsibility for each game encourages the player to win the game so that the child has responsibility for the course of the game
g. The value of togetherness and mutual help, in the game the group is not only one who can play a role but the effort to cooperate is a step towards group victory
h. The value of compliance, existing game rules determine game winnings
i. The value of mathematical skills, each player must be able to count

j. The value of thinking skills, playing requires thinking tactics in completing the game.
k. The value of honesty and sportsmanship, in play is needed to give firmness in playing

The development of traditional games in the modern era is being promoted in Indonesia. Various types of individual and group games that are being abandoned with technology-based games are now being attempted to be revived. One of the efforts to reinvigorate traditional games is to package game facilities and infrastructure to become more modern.

One of the efforts to modernize traditional games through attractive technology and packaging. Examples of the types of traditional game infrastructure facilities that will be developed in a modern way are taken from the children's toy centers in the Karanganyar village, Welahan, Jepara. To support the modernization of traditional games can be developed to attract children's interest by applying (1) simple natural ingredients as a basis for traditional game equipment, (2) the technology of traditional game machine production equipment, and (3) packaging of children's toy sales with a modern design. The success of modification of infrastructure facilities supporting traditional games with modern machines will improve the quality management and management of traditional children's toys by local craftsmen.

2 Method

The problem in the traditional children's toy Kratif industry is that researchers find business partners as well as toy crafters in Karanganyar, Welahan, Jepara. The method applied to the three main aspects of the difficulty of craftsmen, includes.

a. Raw materials for traditional children's toys still use synthetic and chemical materials that are not child friendly because they are pursuing target markets at low prices. Therefore, a method of assistance is needed to find alternative raw materials that utilize the surrounding environment and do not cause harm to be played by children. The methods that can be used through observation and literature studies on natural raw materials that have a level of security and resistance to the production of traditional children's toys
b. The production of children's toys as one of the creative industries should be able to utilize creativity or specific cultural-based skills so as not to eliminate the role of the community as inventors and business implementers. The introduction of machine technology or production aids is trying to be implemented by designing the replacement needs of human power to accelerate and increase the amount of production. In addition, control of the quality of goods becomes more standardized
c. The product design process is well conceptualized and not only follows market demand, must have a safe, attractive, educative and environment-based function. The creation of labels and the provision of knowledge of products is an identity as well as education of traditional children's toys that we seldom find in toys at low prices:
    1) Brainstorming about product design development that has been developed.
    2) Assistance in knowledge of children's toy designs that have educational values.
    3) Packaging is mainly the packaging of traditional children's toys which have not yet become production costs

3 Result and Discussion

The problems that occur in the traditional children's toys creative industry in the Jepara region result in changes in processes and production, including:

3.1 Analysis of Production Machine Needs

The raw materials for making traditional children's toys include: children's toys *lelean* or trothokan made of sponge foam material, cement, sand, rubber, glue, wire, paint and plastic are difficult materials to get the predicate SNI children toys. The production process with manual sponge printing equipment causes the limited number of sponge prints that rely on human power. The selling price of Rp 1500, - up to Rp 5000, - is a price that is not optimal if all components of a child's toy are done with human power. At the same time, the product does not have a good trade label, so it is difficult to introduce and even give recognition to products that are commodities of a region.

Identification of technology production equipment or machines is expected to be able to process raw materials into toy products that have security for children who use products. The criteria for good product raw materials and technology need:

Table 1. Identification of the Sponge Printing Machine.

No	Material Name	Item Name	Danger	Subtitute Proposal	Machine Needed
1	Sponge	Sponge	Plant waste	Sponge	Sponge Cutting Blade
2	Sponge paint	Sponge paint	Smells unpleasant and imprints on the fingers	Paint water base	Compressor Paint Poster and Clear Pilox
3	Screen Printing Paint	catfish tail	Easy to tear	Screen Printing Paint	Screen Printing Machine
4	Wire	Hook wire	Sharp	Hose coating	Wire Cutting Tools in large quantities
5	Cement and Sand	Wheels	Rough and heavy	Smoothed	Wood Lathes
6	Rubber bracelet	Binder	Less safe	Food rubber	-

3.2 The Technology of Sponge Printing Machine in The Traditional Toy Industry

Source: Researcher's Personal Documentation

Fig. 1. Simple technology with human power.

Based on the results of observation and analysis of the needs of production equipment partners, they still use human power and depend on weather so that another equipment is needed for production effectiveness. The production process that still uses manual machines identified the type of product still follows the creation of craftsmen. And is influenced by the local coastal environment, so that the amount of production adjusts the ability or labor force, and has not had a good standard of toy quality for the traditional toy category. Therefore, it is necessary to design a traditional children's toy sponge printer using heat energy and a sponge press machine. The engine design needed by the craftsmen is as follows.

Table 2. Sponge Printer Machine Specifications.

TOOLS & MATERIALS	MAKING PROCEDURES	WORK SYSTEM	HOW TO USE
1. *Plat stainles* 2 mm thick. Outer diameter is 335 mm sebanyak 2 pc. 2. *Rangka siku* 40 mm × 40 mm. 3. *Rangka* size 214 mm × 214 mm. 4. *Rangka* height 250 mm. 5. Electric heaters use nickel heating 500 what. 6. Electric control voltage control model. 7. Anti-hot asbestos hose. 8. Heat insulator layer 9. *Versing metris screw* 5. 10. Cable 2 and sufficient socket.	1. Steanles plate is cut according to the size available. 2. The upper heating plate is in drill version 5 places. 3. The bottom heating plate is drill in 6 places, one hole for cable flow. 4. The element heater is placed between the two top and bottom plates, then is joined by the m5 versing bolts to maintain surface flatness. 5. The top plate and bottom plate are put together to be mounted on an iron frame measuring 214 mm × 214 mm and a height of 250 mm bolted and also given a heating insulator so that the heating does not widen to another place. 6. Electric supply control is bolted to the frame. The supply cable uses a power outlet. And the output cable from the control is connected using a terminal that was	1. PLN 220v electricity goes to the voltage controller to be channeled to the heating element that is between the heating plates. 2. The heater is equipped with a temperature regulator by regulating the supply voltage of the heater to get the heat needed for the heating process (operator capacity).	1. Connect the wall outlet to the mains. 2. Wait a few minutes for checking the heat generated. 3. Adjust the heat of the heater by turning the potentiometer. 4. After the heat is enough, place the material (sponge) over the heater. 5. If the sponge looks weak, then reverse to get even heat. 6. The sponge is ready to be printed (formed)

	previously installed with a heat-resistant sleeve (asbestos hose)		
TOOLS & MATERIALS	MAKING PROCEDURES	WORK SYSTEM	HOW TO USE
1. Mold (Dies / Molding) a set of top-downs. 2. *Rangka siku* iron size 50 mm × 50 mm. 3. The bottom iron plate is 300 mm × 400 mm thick and 8/10 mm thick. 4. Placemat iron plate over 300 mm × 300 mm and 8/10 mm thick. 5. The pressure plate is 300 mm × 300 mm thick and 8/10 mm thick. 6. Spring suppresses outer diameter 16 mm, length 30 mm as much as 4 pieces. 7. M8 bolts 60 mm long as many as 4 pieces. 8. The curling *as* are 12 mm long by 500 mm. 9. Eccentric Cam diameter 140 mm thick 40 mm. 10. Eccentric *as* diameter 20 mm long 500 mm long. 11. Pressing *as* 25 mm × 300 mm. 12. 6201 number press bearing as much as 1 piece. 13. Press bearing as diameter 40 mm length 70 mm as much as 1 piece. 14. Press bearing *baut*	1. The main frame bolts are 300 mm × 300 mm with a height of 150 mm 2. The bottom plate plate on the bur tap is m6 for the daes binding site (bottom mold). 3. Upper plate plate in m6 bur tap for daes bonding (upper mold), 4 tap bur for spring seat plate 4. The pressure plate in the bur with a diameter of 9 mm is 4 places as a spring bolt, then in the 8 mm diameter bur center for the holder of the pressing axle, bur tap m10 for a pressure guide so that the drop can be straight (center). 5. The press with both ends is buried with a m8 tap as deep as 30 mm. 6. Diembling pressing force with pressure plate and pressure bearing holder by means of m8 bolt. 7. The eccentric axles are attached to the side frame that has been installed in the pillow block. 8. As crank is installed. 9. The guide stand frame is attached to the right and left side	1. The pressure works to put pressure down on the printer. 2. With this pressure, causing the holder *per* pressure to be pressed down so as to give a stronger pressure effect. 3. The pressure on the pressure suppressor gives pressure to the top mold to the bottom mold. 4. By pulling the pressure lever to the maximum, the lever can be locked automatically so that the user does not need to press simultaneously until the cooling of the sponge occurs. 5. The provision of a press shaft guide serves to express the direction of rise and fall of the mold, so that the mold is not dislocated	1. Prepare a heated sponge for printing. 2. Enter the sponge between the top and bottom printers. 3. Make the sponge symmetrical and precise between the top mold and the bottom mold. 4. Pull the pressure lever until the pressure is locked. 5. Let stand for a while until the sponge reaches normal temperature. 6. After the sponge is felt to have returned to normal temperature, lift the pressure lever. 7. Take the molded sponge that has been formed. 8. The printed sponge is ready for use.

m12 40 mm long by 1 piece.
15. As guide diameter of 10 mm × 120 mm as much as 2 pieces plus nuts.
16. Eccentric *rangka as* much as 2 pieces.
17. Guide *dudukan rangka* and spring holder repressor return.
18. Guide *as* suppressor of teflon as much as 1 piece.
19. Guide to 2 teflon pressing plates.
20. Pillow block bearing FY504 as many as 2 pieces.
21. M6 × 15 mm bolts are 20 pieces.
22. M10 × 30 mm bolts are 20 pieces.

guides to keep the up and down motion of the mold to stay center.
10. Top molds with 4 spring and spring bolts.
11. The pull is attached to the guide frame and pressure plate.

The Image Design of Sponge Molding Machines presented below:

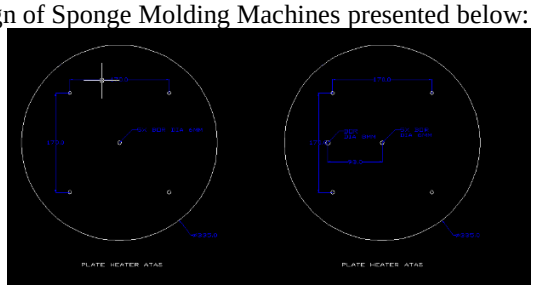

Fig. 2. Heating table.

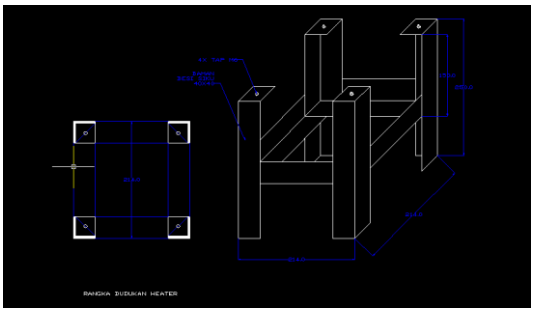

Fig. 3. Heater Table Legs.

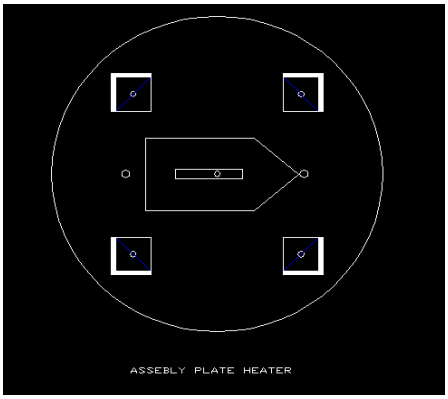

Fig. 4. Sponge Printer Table

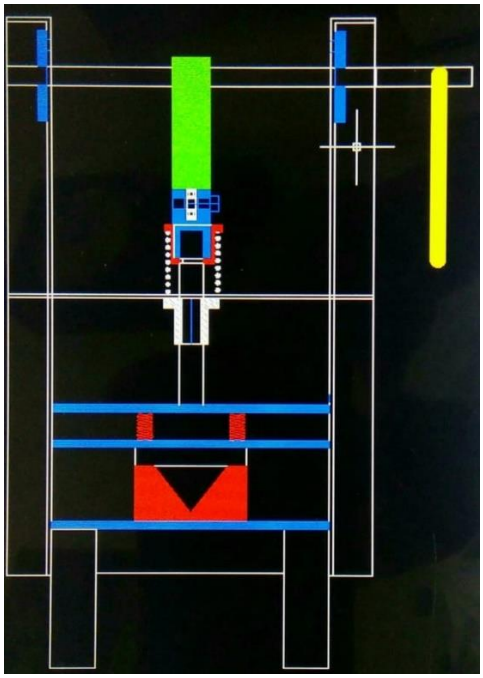

Fig. 5. Catfish Printing Machine.

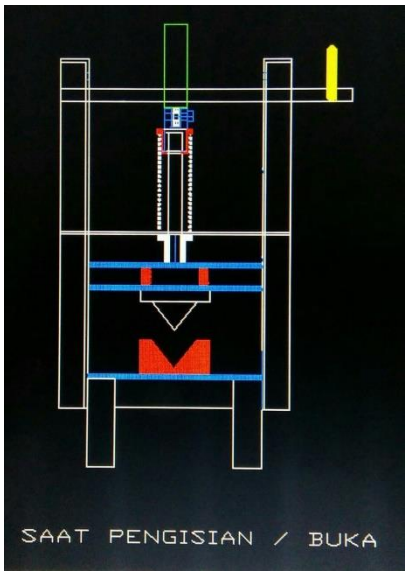

Fig. 6. Before Use**.**

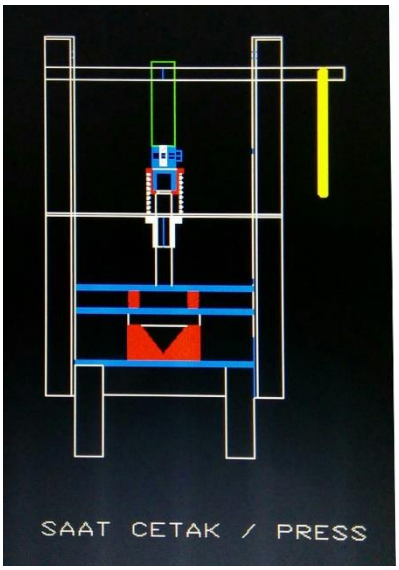

Fig. 7. After Use.

3.3 Packaging children's toys with modern designs

The packaging that has been done by entrepreneurs as well as traditional children's toy crafters from Karanganyar Welahan Jepara is only in the form of clear white plastic without labels and is tightened with ropes. There is no information in the brand of products sold. Continuity of product marketing is neglected, so it is not known where and by whom the product was developed.

The important of packaging on products using designs that children like to use IT technology is needed. Verbal information in the form of images and writings written in packaging tries to be presented. The importance of this information makes the child toy consumers know, remember and disseminate product information (Irrubai, 2016) [5].

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